



Variable Frequency Drive, 1-/3- 230 V, 10.5 A, 2.2 kW, Brake-Chopper



Part no. DC1-12011NB-A66N
Catalog No. 169235
Eaton Catalog No. DC1-12011NB-A66N

Delivery program

				This item will continue to be available for a limited time only and is being replaced by the following item: 185798, DC1-12011NB-A66CE1
Product range				Variable frequency drives
Part group reference (e.g. DIL)				DC1
Rated operational voltage	U_e			230 V AC, 1-phase 240 V AC, single-phase
Output voltage with V_e	U_2			230 V AC, 3-phase 240 V AC, 3-phase
Mains voltage (50/60Hz)	U_{LN}	V		200 (-10%) - 240 (+10%)
Rated operational current				
At 150% overload	I_e	A		10.5
Note				Rated operational current at a switching frequency of 16 kHz and an ambient air temperature of +40 °C
Note				Overload cycle for 60 s every 600 s
Assigned motor rating				
Note				for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm ⁻¹ at 50 Hz or 1800 min ⁻¹ at 60 Hz
Note				Overload cycle for 60 s every 600 s
Note				at 230 V, 50 Hz
150 % Overload	P	kW		2.2
150 % Overload	I_M	A		8.7
Note				at 220 - 240 V, 60 Hz
150 % Overload	P	HP		3
150 % Overload	I_M	A		9.6
Degree of Protection				IP66/NEMA 4X
Interface/field bus (built-in)				OP-Bus (RS485)/Modbus RTU, CANopen®
Fieldbus connection (optional)				SmartWire-DT
Fitted with				Brake chopper 7-digital display assembly
Frame size				FS2
Connection to SmartWire-DT				with SmartWire-DT module DX-NET-SWD2

Technical data

General

Standards				Specification for general requirements: IEC/EN 61800-2 EMC requirements: IEC/EN 61800-3 Safety requirements: IEC/EN 61800-5-1
Certifications				CE, UL, cUL, RCM, UkrSEPRO, EAC
Production quality				RoHS, ISO 9001
Climatic proofing	ρ_w	%		< 95%, average relative humidity (RH), non-condensing, non-corrosive
Ambient temperature				
operation (150 % overload)	θ	°C		-10 - +40 -10 - +45 °C for UL compliance over a period of 24 hours.
Storage	θ	°C		-40 - +60
Mounting position				Vertical
Altitude		m		0 - 1000 m above sea level Above 1000 m: 1% derating for every 100 m max. 4000 m
Degree of Protection				IP66/NEMA 4X
Protection against direct contact				BGV A3 (VBG4, finger- and back-of-hand proof)

Main circuit

Supply			
Rated operational voltage	U_e		230 V AC, 1-phase 240 V AC, single-phase
Mains voltage (50/60Hz)	U_{LN}	V	200 (-10%) - 240 (+10%)
Input current (150% overload)	I_{LN}	A	19.2
System configuration			AC supply systems with earthed center point
Supply frequency	f_{LN}	Hz	50/60
Frequency range	f_{LN}	Hz	48 - 62
Mains switch-on frequency			Maximum of one time every 30 seconds
Power section			
Function			Frequency inverter with internal DC link and IGBT inverter
Overload current (150% overload)	I_L	A	15.75
max. starting current (High Overload)	I_H	%	175
Note about max. starting current			for 2 seconds every 20 seconds
Output voltage with V_e	U_2		230 V AC, 3-phase 240 V AC, 3-phase
Output Frequency	f_2	Hz	0 - 50/60 (max. 500)
Switching frequency	f_{PWM}	kHz	16 adjustable 4 - 32 (audible)
Operation Mode			U/f control Speed control with slip compensation
Frequency resolution (setpoint value)	Δf	Hz	0.1
Rated operational current			
At 150% overload	I_e	A	10.5
Note			Rated operational current at a switching frequency of 16 kHz and an ambient air temperature of +40 °C
Power loss			
Heat dissipation at rated operational current $I_e = 150\%$	P_V	W	103.4
Efficiency	η	%	95.3
Maximum leakage current to ground (PE) without motor	I_{PE}	mA	< 1
Fitted with			Brake chopper 7-digital display assembly
Frame size			FS2
Motor feeder			
Note			for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm^{-1} at 50 Hz or 1800 min^{-1} at 60 Hz
Note			Overload cycle for 60 s every 600 s
Note			at 230 V, 50 Hz
150 % Overload	P	kW	2.2
Note			at 220 - 240 V, 60 Hz
150 % Overload	P	HP	3
maximum permissible cable length	l	m	screened: 100 screened, with motor choke: 200 unscreened: 150 unscreened, with motor choke: 300
Apparent power			
Apparent power at rated operation 230 V	S	kVA	4.18
Apparent power at rated operation 240 V	S	kVA	4.36
Braking function			
Standard braking torque			max. 30 % M_N
DC braking torque			adjustable to 100 %
Braking torque with external braking resistance			Max. 100% of rated operational current I_e with external braking resistor
minimum external braking resistance	R_{min}	Ω	50
Switch-on threshold for the braking transistor	U_{DC}	V	390 V DC
Control section			
Reference voltage	U_s	V	10 V DC (max. 10 mA)
Analog inputs			2, parameterizable, 0 - 10 V DC, 0/4 - 20 mA

Analog outputs			1, parameterizable, 0 - 10 V
Digital inputs			4, parameterizable, max. 30 V DC
Digital outputs			1, parameterizable, 24 V DC
Relay outputs			1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)
Interface/field bus (built-in)			OP-Bus (RS485)/Modbus RTU, CANopen®

Assigned switching and protective elements

Power Wiring			
IEC (Type B, gG), 150 %			FAZ-B25/1N
UL (Class CC or J)		A	25
150 % overload (CT/I _H , at 50 °C)			DX-LN1-024
Motor feeder			
150 % overload (CT/I _H , at 50 °C)			DX-LM3-011
150 % overload (CT/I _H , at 50 °C)			DX-SIN3-016
10 % duty factor (DF)			DX-BR050-0K4
20 % duty factor (DF)			DX-BR050-0K8
40 % duty factor (DF)			DX-BR047-3K1

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I _n	A	10.5
Heat dissipation per pole, current-dependent	P _{vid}	W	0
Equipment heat dissipation, current-dependent	P _{vid}	W	103.4
Static heat dissipation, non-current-dependent	P _{vs}	W	0
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature max.		°C	-10
Operating ambient temperature max.		°C	40
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
10.2.3.1 Verification of thermal stability of enclosures			
10.2.3.2 Verification of resistance of insulating materials to normal heat			
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
10.2.4 Resistance to ultra-violet (UV) radiation			
10.2.5 Lifting			
10.2.6 Mechanical impact			
10.2.7 Inscriptions			
10.3 Degree of protection of ASSEMBLIES			
10.4 Clearances and creepage distances			
10.5 Protection against electric shock			
10.6 Incorporation of switching devices and components			
10.7 Internal electrical circuits and connections			
10.8 Connections for external conductors			
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
10.9.3 Impulse withstand voltage			
10.9.4 Testing of enclosures made of insulating material			
10.10 Temperature rise			
10.11 Short-circuit rating			
10.12 Electromagnetic compatibility			
10.13 Mechanical function			

Technical data ETIM 5.0

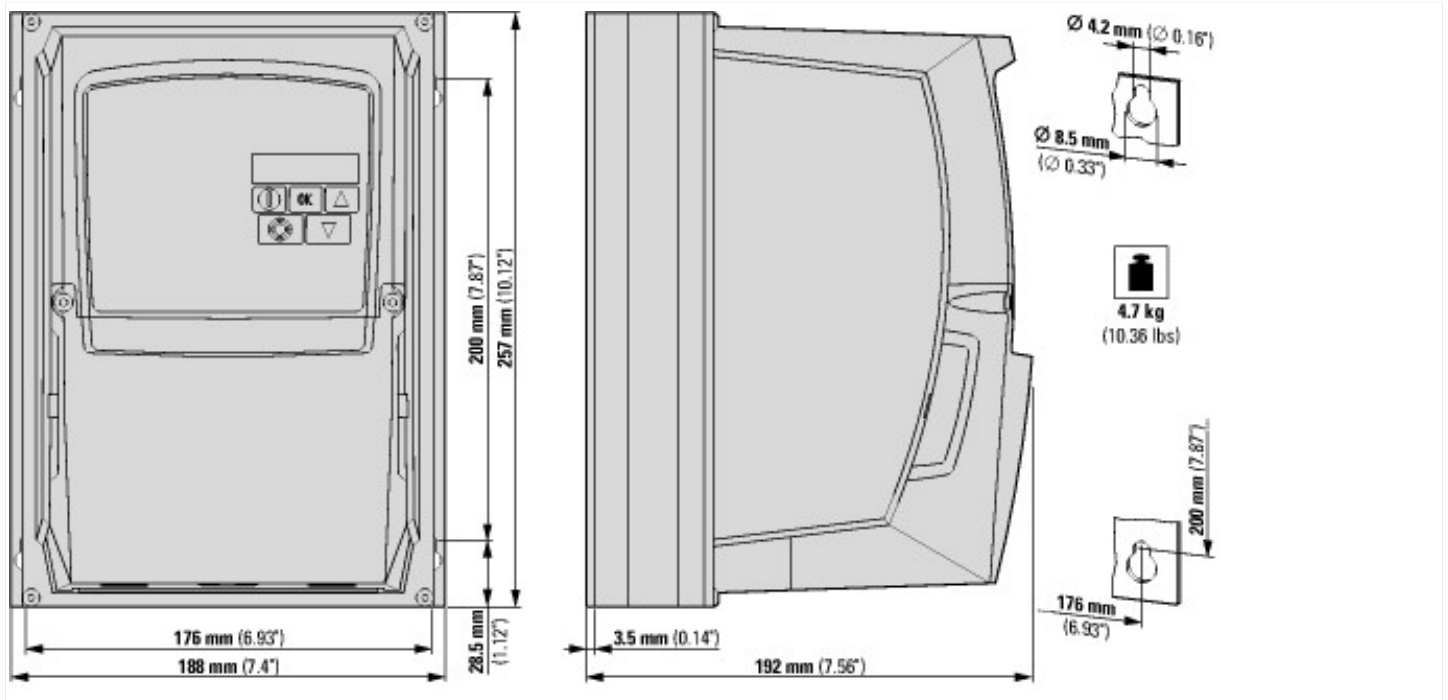
Mains voltage	V	200 - 240
Mains frequency		50/60 Hz
Number of phases input		1
Number of phases output		3
Max. output frequency	Hz	500
Rated output voltage	V	230
Measuring output current	A	10.5
Output power at rated output voltage	kW	2.2
Max. output at quadratic load at rated output voltage	kW	2.2
Max. output at linear load at rated output voltage	kW	2.2
With control unit		Yes
Application in industrial area permitted		Yes
Application in domestic- and commercial area permitted		Yes
Supporting protocol for TCP/IP		No
Supporting protocol for PROFIBUS		No
Supporting protocol for CAN		Yes
Supporting protocol for INTERBUS		No
Supporting protocol for ASI		No
Supporting protocol for KNX		No
Supporting protocol for MODBUS		Yes
Supporting protocol for Data-Highway		No
Supporting protocol for DeviceNet		No
Supporting protocol for SUCONET		No
Supporting protocol for LON		No
Supporting protocol for PROFINET IO		No
Supporting protocol for PROFINET CBA		No
Supporting protocol for SERCOS		No
Supporting protocol for Foundation Fieldbus		No
Supporting protocol for EtherNet/IP		No
Supporting protocol for AS-Interface Safety at Work		No
Supporting protocol for DeviceNet Safety		No
Supporting protocol for INTERBUS-Safety		No
Supporting protocol for PROFIsafe		No
Supporting protocol for SafetyBUS p		No
Supporting protocol for other bus systems		No
Number of HW-interfaces industrial Ethernet		0
Number of HW-interfaces PROFINET		0
Number of HW-interfaces RS-232		0
Number of HW-interfaces RS-422		0
Number of HW-interfaces RS-485		1
Number of HW-interfaces serial TTY		0
Number of HW-interfaces USB		1
Number of HW-interfaces parallel		0
Number of HW-interfaces other		0
With optical interface		No
With PC connection		Yes
Integrated braking resistance		Yes
4-quadrant operation possible		No
Type of converter		U converter
Degree of protection (IP)		IP66
Height	mm	231
Width	mm	107
Depth	mm	152

Relative symmetric net frequency tolerance	%	5
Relative symmetric net current tolerance	%	10

Approvals

Product Standards		UL 508C; CSA-C22.2 No. 14; IEC/EN61800-3; IEC/EN61800-5; CE marking
UL File No.		E172143
UL Category Control No.		NMMS, NMMS7
CSA File No.		UL report applies to both US and Canada
North America Certification		UL listed, certified by UL for use in Canada
Specially designed for North America		No
Suitable for		Branch circuits
Max. Voltage Rating		1~ 240 V AC IEC: TN-S UL/CSA: "Y" (Solidly Grounded Wey)
Degree of Protection		IEC: IP66

Dimensions



Additional product information (links)

IL04020013Z DC1 variable frequency drives (FS1 - FS3, IP66)

IL04020013Z DC1 variable frequency drives (FS1 - FS3, IP66) ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL04020013Z2016_07.pdf

MN04020003Z DC1 variable frequency drives, Installation manual

MN04020003Z Frequenzumrichter DC1, ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020003Z_DE.pdf
Installationshandbuch - Deutsch

MN04020003Z DC1 variable frequency drives, ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020003Z_EN.pdf
Installation manual - English

MN04020003Z DC1 variable frequency drives, ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020003Z_CZ.pdf
Installation manual - čeština

MN04020003Z DC1 variable frequency drives, ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020003Z_IT.pdf
Installation manual - italiano

MN04020004Z DC1 variable frequency drives, Parameters manual

MN04020004Z Frequenzumrichter DC1, ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020004Z_DE.pdf
Parameterhandbuch - Deutsch

MN04020004Z DC1 variable frequency drives, ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04020004Z_EN.pdf
Parameters manual - English

CA04020001Z-EN Product Range Catalog: http://www.eaton.eu/DE/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_1095238.pdf
Efficient Engineering for Starting and Controlling Motors